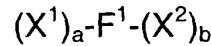


**What is claimed is:**

1. A composition of matter of the formula



and multimers thereof, wherein:

5  $F^1$  is an Fc domain;

$X^1$  and  $X^2$  are each independently selected from  $-(L^1)_c-P^1$ ,  $-(L^1)_c-P^1-(L^2)_d-P^2$ ,  $-(L^1)_c-P^1-(L^2)_d-P^2-(L^3)_e-P^3$ , and  $-(L^1)_c-P^1-(L^2)_d-P^2-(L^3)_e-P^3-(L^4)_f-P^4$

10  $P^1$ ,  $P^2$ ,  $P^3$ , and  $P^4$  are each independently sequences of pharmacologically active peptides;

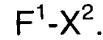
$L^1$ ,  $L^2$ ,  $L^3$ , and  $L^4$  are each independently linkers; and

a, b, c, d, e, and f are each independently 0 or 1, provided that at least one of a and b is 1.

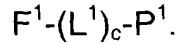
2. The composition of matter of Claim 1 of the formulae



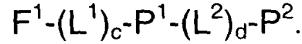
or



3. The composition of matter of Claim 1 of the formula



20 4. The composition of matter of Claim 1 of the formula



5. The composition of matter of Claim 1 wherein  $F^1$  is an IgG Fc domain.

25 6. The composition of matter of Claim 1 wherein  $F^1$  is an IgG1 Fc domain.

7. The composition of matter of Claim 1 wherein  $F^1$  comprises the sequence of SEQ ID NO: 2.

8. The composition of matter of Claim 1 wherein  $X^1$  and  $X^2$  comprise an IL-1 antagonist peptide sequence.

9. The composition of matter of Claim 8 wherein the IL-1 antagonist peptide sequence is selected from SEQ ID NOS: 212, 907, 908, 909, 910, 917, and 979.
10. The composition of matter of Claim 8 wherein the IL-1 antagonist peptide sequence is selected from SEQ ID NOS: 213 to 271, 671 to 906, 911 to 916, and 918 to 1023.
11. The composition of matter of Claim 8 wherein F<sup>1</sup> comprises the sequence of SEQ ID NO: 2.
12. The composition of matter of Claim 1 wherein X<sup>1</sup> and X<sup>2</sup> comprise an EPO-mimetic peptide sequence.
13. The composition of matter of Claim 12 wherein the EPO-mimetic peptide sequence is selected from Table 5.
14. The composition of matter of Claim 12 wherein F<sup>1</sup> comprises the sequence of SEQ ID NO: 2.
15. The composition of matter of Claim 12 comprising a sequence selected from SEQ ID NOS: 83, 84, 85, 124, 419, 420, 421, and 461. .
16. The composition of matter of claim 12 comprising a sequence selected from SEQ ID NOS: 339 and 340.
17. The composition of matter of Claim 12 comprising a sequence selected from SEQ ID NOS: 20 and 22.
18. The composition of matter of Claim 3 wherein P<sup>1</sup> is a TPO-mimetic peptide sequence.
19. The composition of matter of Claim 18 wherein P<sup>1</sup> is a TPO-mimetic peptide sequence selected from Table 6.
20. The composition of matter of Claim 18 wherein F<sup>1</sup> comprises the sequence of SEQ ID NO: 2.
21. The composition of matter of Claim 18 having a sequence selected from SEQ ID NOS: 6 and 12.
22. A DNA encoding a composition of matter of any of Claims 1 to 21.

23. An expression vector comprising the DNA of Claim 22.
24. A host cell comprising the expression vector of Claim 23.
25. The cell of Claim 24, wherein the cell is an E. coli cell.
26. A process for preparing a pharmacologically active compound,  
5 which comprises
  - a) selecting at least one randomized peptide that modulates the activity of a protein of interest; and
  - b) preparing a pharmacologic agent comprising at least one Fc domain covalently linked to at least one amino acid sequence of the selected peptide or peptides.
- 10 27. The process of Claim 26, wherein the peptide is selected in a process comprising screening of a phage display library, an E. coli display library, a ribosomal library, or a chemical peptide library.
28. The process of Claim 26, wherein the preparation of the  
15 pharmacologic agent is carried out by:
  - a) preparing a gene construct comprising a nucleic acid sequence encoding the selected peptide and a nucleic acid sequence encoding an Fc domain; and
  - b) expressing the gene construct.
- 20 29. The process of Claim 26, wherein the gene construct is expressed in an E. coli cell.
30. The process of Claim 26, wherein the protein of interest is a cell surface receptor.
31. The process of Claim 26, wherein the protein of interest has a linear  
25 epitope.
32. The process of Claim 26, wherein the protein of interest is a cytokine receptor.
33. The process of Claim 26, wherein the peptide is an EPO-mimetic peptide.

34. The process of Claim 26, wherein the peptide is a TPO-mimetic peptide.
35. The process of Claim 26, wherein the peptide is an IL-1 antagonist peptide.
- 5 36. The process of Claim 26, wherein the peptide is an MMP inhibitor peptide or a VEGF antagonist peptide.
37. The process of Claim 26, wherein the peptide is a TNF-antagonist peptide.
- 10 38. The process of Claim 26, wherein the peptide is a CTLA4-mimetic peptide.
39. The process of Claim 26, wherein the peptide is selected from Tables 4 to 20.
40. The process of Claim 26, wherein the selection of the peptide is carried out by a process comprising:
  - 15 a) preparing a gene construct comprising a nucleic acid sequence encoding a first selected peptide and a nucleic acid sequence encoding an Fc domain;
  - b) conducting a polymerase chain reaction using the gene construct and mutagenic primers, wherein
    - 20 i) a first mutagenic primer comprises a nucleic acid sequence complementary to a sequence at or near the 5' end of a coding strand of the gene construct, and
    - ii) a second mutagenic primer comprises a nucleic acid sequence complementary to the 3' end of the noncoding strand of the gene construct.
- 25 41. The process of Claim 26, wherein the compound is derivatized.
42. The process of Claim 26, wherein the derivatized compound comprises a cyclic portion, a cross-linking site, a non-peptidyl

linkage, an N-terminal replacement, a C-terminal replacement, or a modified amino acid moiety.

43. The process of Claim 26 wherein the Fc domain is an IgG Fc domain.
- 5 44. The process of Claim 26, wherein the vehicle is an IgG1 Fc domain.
45. The process of Claim 26, wherein the vehicle comprises the sequence of SEQ ID NO: 2.
46. The process of Claim 26, wherein the compound prepared is of the formula

10 
$$(X^1)_a-F^1-(X^2)_b$$

and multimers thereof, wherein:

$F^1$  is an Fc domain;

$X^1$  and  $X^2$  are each independently selected from  $-(L^1)_c-P^1$ ,  $-(L^1)_c-P^1-(L^2)_d-P^2$ ,  $-(L^1)_c-P^1-(L^2)_d-P^2-(L^3)_e-P^3$ , and  $-(L^1)_c-P^1-(L^2)_d-P^2-(L^3)_e-P^3-(L^4)_f-P^4$

15  $P^1$ ,  $P^2$ ,  $P^3$ , and  $P^4$  are each independently sequences of pharmacologically active peptides;

$L^1$ ,  $L^2$ ,  $L^3$ , and  $L^4$  are each independently linkers; and

a, b, c, d, e, and f are each independently 0 or 1, provided

20 that at least one of a and b is 1.

47. The process of Claim 46, wherein the compound prepared is of the formulae

$$X^1-F^1$$

or

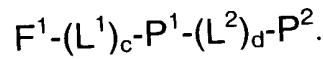
$$F^1-X^2.$$

25

48. The process of Claim 46, wherein the compound prepared is of the formulae

$$F^1-(L^1)_c-P^1$$

or



49. The process of Claim 46, wherein  $F^1$  is an IgG Fc domain.
50. The process of Claim 46, wherein  $F^1$  is an IgG1 Fc domain.
51. The process of Claim 46, wherein  $F^1$  comprises the sequence of SEQ ID NO: 2.